Claims

1.

A plastic container that includes:

a finish, a shoulder extending from said finish, a closed base, and a sidewall connecting said shoulder to said base,

said sidewall being of blow molded construction and having an array of circumferentially spaced longitudinally extending radially recessed channels, and an array of axially spaced circumferentially extending radially recessed channels intersecting said longitudinally extending channels,

said longitudinally extending channels having radially inner portions that lie on an hourglass-shaped common surface of revolution around an axis of said sidewall.

2.

The container set forth in claim 1 wherein said hourglass-shaped surface of revolution curves continuously between said shoulder and said base.

3.

The container set forth in claim 2 wherein said hourglass-shaped surface of revolution has a waist about halfway between said shoulder and said base.

4.

The container set forth in claim 2 wherein said hourglass-shaped surface of revolution has a mid portion with a constant radius of curvature.

5.

The container set forth in claim 1 wherein land areas between said longitudinally extending channels and said circumferentially extending channels lie on a common surface of revolution around said axis.

6.

The container set forth in claim 1 wherein said longitudinally extending channels are at an angle in the range of 0 to 30° to said axis.

7.

The container set forth in claim 6 wherein said longitudinally extending channels are parallel to each other and to said axis, and are uniformly circumferentially spaced around said axis.

8.

The container set forth in claim 6 wherein said circumferentially extending channels are parallel to each other and perpendicular to said axis, and are uniformly axially spaced from each other.

9.

The container set forth in claim 1 wherein said circumferentially extending channels have radial depths as a function of axial position along said sidewall in coordination with radial depth of said radially inner portions of said longitudinally extending channels.

10.

The container set forth in claim 9 wherein said circumferentially extending channels are concave at identical radii of curvature.

11.

The container set forth in claim 1 wherein said radially inner portions of said longitudinally extending channels lie radially inwardly of radially inner portions of said circumferentially extending channels.

12.

The container set forth in claim 1 wherein said sidewall is of monolayer or multilayer PET construction and has a sidewall thickness in the range of 0.005 to 0.03 inch.

13.

A container sidewall of blow molded plastic construction, which includes:

an array of circumferentially spaced longitudinally extending channels that are parallel to each other and to an axis of said sidewall, and

an array of axially spaced circumferentially extending and circumferentially continuous channels intersecting said longitudinally extending channels,

said longitudinally extending channels having radially inner portions that lie on an hourglass-shaped common surface of revolution around said axis, said hourglass-shaped surface of revolution curving continuously between axially spaced ends of said sidewall.

14.

The sidewall set forth in claim 13 wherein said hourglass-shaped surface of revolution has a waist about midway along said sidewall.

15.

The sidewall set forth in claim 14 wherein said hourglass-shaped surface of revolution has a mid portion with a constant radius of curvature.

16.

The sidewall set forth in claim 13 wherein land areas between said longitudinally extending channels and said circumferentially extending channels lie on a common surface of revolution around said axis.

17.

The sidewall set forth in claim 13 wherein said circumferentially extending channels have radial depths as a function of axial position along said sidewall in coordination with radial depth of said radially inner portions of said longitudinally extending channels.

18.

The sidewall set forth in claim 17 wherein said circumferentially extending channels are concave at identical radii of curvature.

19.

The sidewall set forth in claim 13 wherein said radially inner portions of said longitudinally extending channels lie radially inwardly of radially inner portions of said circumferentially extending channels.

20.

The sidewall set forth in claim 13 wherein said sidewall is of monolayer or multilayer PET construction and has a sidewall thickness in the range of 0.005 to 0.03 inch.

21.

A container of blow molded plastic construction that includes:

a finish, a shoulder extending from said finish, a closed base and a sidewall connecting said shoulder to said base,

said sidewall having an axis and a plurality of axially and circumferentially spaced land areas with outer surfaces on a common surface of revolution around said axis,

said land areas being separated from each other by a plurality of circumferentially spaced channels and a plurality of axially spaced channels that intersect said circumferentially spaced channels,

said land areas being disposed in spaces between said channels.

22.

The container set forth in claim 21 wherein said common surface of revolution is cylindrical.

23.

The container set forth in claim 21 wherein said land areas are rectangular as viewed in side elevation.

24.

The container set forth in claim 21 wherein said circumferentially spaced channels have radially inner portions that lie on an hourglass-shaped common surface of revolution around said axis.

25.

The container set forth in claim 24 wherein said hourglass-shaped surface of revolution curves continuously between said shoulder and said base.

26.

The container set forth in claim 25 wherein said hourglass-shaped surface of revolution has a waist about halfway between said shoulder and said base.

27.

The container set forth in claim 25 wherein said hourglass-shaped surface of revolution has a mid portion with a constant radius of curvature.

28.

The container set forth in claim 24 wherein said circumferentially extending channels have radial depths as a function of axial position along said sidewall in coordination with radial depth of said radially inner portions of said longitudinally extending channels.

29.

The container set forth in claim 24 wherein said radially inner portions of said circumferentially spaced channels lie radially inwardly of radially inner portions of said axially spaced channels.

30.

The container set forth in claim 21 wherein said sidewall is of monolayer or multilayer PET construction and has a sidewall thickness in the range of 0.005 to 0.03 inch.

31.

A container of blow-molded plastic construction that includes:

a finish, a shoulder extending from said finish, a closed bottom and a sidewall connecting said shoulder to said bottom,

said sidewall having an array of circumferentially spaced longitudinally extended channels and an array of axially spaced circumferentially extending channels intersecting said longitudinally extending channels,

said longitudinally extending channels and said circumferentially extending channels having radially inner portions at differing radii with respect to an axis of the sidewall.

32.

The container set forth in claim 1 wherein said longitudinally extending channels having radially inner portions that lie on an hourglass-shaped common surface of revolution around an axis of said sidewall.

33.

The container set forth in claim 32 wherein said hourglass-shaped surface of revolution curves continuously between said shoulder and said base.

34.

The container set forth in claim 33 wherein said hourglass-shaped surface of revolution has a waist about halfway between said shoulder and said base.

35.

The container set forth in claim 32 wherein said circumferentially extending channels have radial depths as a function of axial position along said side wall in coordination with radial depth of said radially inner portions of said longitudinally extending channels.

36.

The container set forth in claim 35 wherein said circumferentially extending channels are concave at identical radii of curvature.

37.

The container set forth in claim 31 wherein land areas between said longitudinally extending channels and said circumferentially extending channels lie on a common surface of revolution around said axis.

38.

The container set forth in claim 31 wherein said longitudinally extending channels are parallel to each other and to said axis, and are uniformly circumferentially spaced around said axis.

39.

The container set forth in claim 38 wherein said circumferentially extending channels are parallel to each other and perpendicular to said axis, and are uniformly axially spaced from each other.

40.

A method of making a hollow plastic container that includes the step of blow molding a container having a shoulder, a closed base and a sidewall connecting said shoulder to said base,

said sidewall having an array of circumferentially spaced longitudinally extending radially recessed channels, and an array of axially spaced circumferentially extending radially recessed channels intersecting said longitudinally extending channels,

said longitudinally extending channels having radially inner portions that lie on an hourglass-shaped common surface of revolution around an axis of said sidewall.

41.

A method of making a hollow plastic container that includes the step of blow molding a container sidewall having an array of circumferentially spaced longitudinally extending channels that are parallel to each other and to an axis of said sidewall, and an array of axially spaced circumferentially extending and circumferentially continuous channels intersecting said longitudinally extending channels, said longitudinally extending channels having radially inner portions that lie on an hourglass-shaped common surface of revolution around said axis and that curves continuously between axially spaced ends of said sidewall.

42.

A method of making a hollow plastic container that includes the step of blow molding a shoulder, a base and a sidewall,

said sidewall having an axis and a plurality of axially and circumferentially spaced land areas with outer surfaces on a common surface of revolution around said axis,

said land areas being separated from each other by a plurality of circumferentially spaced channels and a plurality of axially spaced channels that intersect said circumferentially spaced channels,

said land areas being disposed in spaces between said channels.